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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/696,807	10/26/2000	Shinichiro Matsuo	FUJG 17.913	3631
26304	7590	01/14/2004	EXAMINER	
KATTEN MUCHIN ZAVIS ROSENMAN			SHAH, CHIRAG G	
575 MADISON AVENUE			ART UNIT	
NEW YORK, NY 10022-2585			PAPER NUMBER	

2664

DATE MAILED: 01/14/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/696,807

Applicant(s)

MATSUO, SHINICHIRO

Examiner

Chirag G Shah

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. New corrected drawings are required in this application because Figures 2 and 10 do not disclose the entire reference index 100.
2. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect may be deferred until after the examiner has considered the proposed drawing correction. Failure to timely submit the proposed drawing correction will result in the abandonment of the application.

Specification

3. Claim 3 objected to because of the following informalities: "multiplying the total value of the data lengths for the predetermined number of packets divided by the total value of communication time intervals for them by a predetermined value of less than 1" is not described in the specification. Appropriate correction is required.
4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: "multiplying the total value of the data lengths for the predetermined number of packets divided by the total value of communication time intervals for them by a predetermined value of less than 1."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 rejected under 35 U.S.C. 102(e) as being anticipated by Chiussi et al. (U.S. Patent No. 6,075,791).

Referring to claim 1, Chiussi et al. discloses in figure 7 and claim 5 and respective portions of the specification of a communications link interface 1500 (relay apparatus) comprising: packet receiving unit (1010) for receiving an input packet; data length detecting unit for detecting the data length of the packet received by the receiving unit (as disclosed in column 10, lines 10-30 that for each packet, the receiver 1010 also determines the length of each received packet using length information contained in the header); time interval detecting unit for detecting the communication time interval of the packet received by said packet receiving unit (a timestamp register 1050-I, used to store the timestamp of connection I); and band setting unit (server 1100) for setting the communication band of a channel for sending out the packet received by said packet receiving unit (via transmitter 1200), based on the data length detected by said data length detecting unit and the communication time interval detected by said time interval detecting unit as claim.

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6. Claim 15 rejected under 35 U.S.C. 102(e) as being anticipated by Gemar et al. (U.S. Patent No. 6,483,839).

Referring to claim 15, Gemar discloses a communications system 20 having a relay apparatus 25 (traffic manager unit) for use in a network for transmitting variable length data using a fixed length (ATM) packet (as disclosed in column 2, lines 38-58 and column 4, lines 36 to column 5, lines 14 and in claims 1-5), wherein the connection of IP packet having a strict requirement for real time, and the connection having less strict requirement for real time are allocated to the same connection using a service category capable of assuring the (GFR) minimum rate (as disclosed in column 4, lines 36-50) as claim.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2 and 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Chiussi et al. (6,075,791) in view Chiussi et al (U.S. Patent No. 6,654,345).

Referring to claims 2, (6,075,791) discloses in column 10, lines 55 to column 12 lines 27 of band setting unit calculations (server 1100 determines the system potential function each time a transmission is completed and computes the system potential function every time the kth packet arrives at the head of connection queue). (6,075,791) fails to explicitly disclose of calculating said communication band by dividing the total value of said data lengths for a

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predetermined number of packets by the total value of said communication time intervals for them. (6,654,345) discloses in claims 1 and 2 and in column 5, lines 13, to column 6, lines 32 and respective portions of the specification of the server (band setting unit) in the packet network that calculates and schedules the band that uses all available bandwidth for subsequent service based on m timeslots available as claim. Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of 6,075,791 to include the teachings calculation band setting based on $\text{total length} / \text{time} = \text{timeslot}$ as (6,654,345) in order to provide fairness scheduling of bandwidth availability.

Referring to claims 3, (6,075,791) discloses in column 10, lines 55 to column 12 lines 27 of band setting unit calculations (server 1100 determines the system potential function each time a transmission is completed and computes the system potential function every time the k th packet arrives at the head of connection queue). (6,075,791) fails to explicitly disclose of calculating said communication band by multiplying the total value of the data lengths for the predetermined number of packets divided by the total value of communication time intervals for them by a predetermined value of less than 1. (6,654,345) discloses in claims 1 and 2 and in column 5, lines 13, to column 6, lines 32 and respective portions of the specification of the server (band setting unit) in the packet network that calculates and schedules the band that uses all available bandwidth for subsequent service based on m timeslots available as claim. Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of 6,075,791 to include the teachings calculation band setting based on $\text{total length} / \text{time} = \text{timeslot}$ as (6,654,345) in order to provide fairness scheduling of bandwidth availability.

Claims 4-7 rejected under 35 U.S.C. 103(a) as being unpatentable over Chiussi et al. (6,075,791) in view Marin et al. (U.S. Patent No. 6,088,734).

Referring to claim 4 and 5, Chiussi et al. discloses in figure 7 of the relay apparatus according to claim 1, wherein the receiver receives a first packet and a second packet without disclosing priority of QoS, thus indicating that the packets are mingled in the packet receiver unit having high and low priorities. Chiussi et al also discloses that band setting is based on the data length and communication time interval as disclosed in figures 7 and claim 5 and respective portions of the specification. Chiussi, however, fails to explicitly disclose that band setting unit sets the communication band based on the data length and the communication time interval corresponding to the first packet requiring a high service quality. Furthermore, Chiussi fails to disclose of the first packet having strict requirement for real time and second packet have less strict requirement for real time low priority. Marin et al discloses in claims 1, 2 and 7 that as each cell is received by the ATM node (relay unit), the cells are groups based on timestamp and based on priority (high or low) buffers. In other words, upon receiving the cell, a determination is made whether the cell is high or low priority. Furthermore, the high priority packet from the FIFO buffer is extracted and scheduled for band setting prior to the low priority cell. In addition the first packet is an IP packet that conforms to the real time transport protocol as disclosed in figure 1 and in column 12, lines 31-42. Therefore, it would have been obvious to one of ordinary skill in the art to include in the algorithm of scheduling based on priority (level) as taught by Marin into Chiussi's invention in order to efficiently schedule critical data for transmission with priority.

Referring to claims 6, Chiussi discloses in figure 7 and respective portions of the specification that the relay apparatus according to claim 4, wherein the first packet is an IP packet conforming with the real time transport protocol since it is disclosed in column 10, lines 10-30 that for each packet, the receiver 1010 also determines the length of each received packet using length information contained in the header as claims.

Referring to claim 7, Chiussi disclose the relay apparatus in figure 7 according to claim 6, wherein said data length detecting unit detects the data length based on the total length contained in an IP header of the IP packet (as disclosed in column 10, lines 10-30 that for each packet, the receiver 1010 also determines the length of each received packet using length information contained in the header), and said time interval detecting unit detects the communication time interval based on a time stamp contained in a real time transport protocol message of the IP packet (a timestamp register 1050-I, used to store the timestamp of connection I) as claim.

9. Claims 8-11 rejected under 35 U.S.C. 103(a) as being unpatentable over Chiussi et al. in view of Marin et al. as applied to claims 4-7 above, and further in view of Gemar et al. (U.S. Patent No. 6,483,839).

Referring to claim 8, Chiussi in view of Marin teaches of setting communication band based on priority, data length and packet receiving unit and of sorting for scheduling packets in an ATM network received by the packet receiving unit. Chiussi in view of Marin fails to explicitly disclose ATM output control unit for outputting the ATM cells segmented by said cell segmentation unit to an ATM connection as the channel, and switch control unit for controlling

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said ATM output control unit to output preferentially the ATM cells corresponding to the first packet, when the ATM cells corresponding to the first and second packets are mingled and input into said ATM output control unit. Gemar et al. also discloses in figure 1 and respective portion of the specification of the relay apparatus comprising cell segmentation unit 46 for segmenting the first and second packets received by said packet receiving into the ATM cells. Gemar further discloses in column 6, lines 40-55 of outputting the ATM cells segmented by cell segmentation unit 46 into a transmit FIFO memory 500. The data cells are transmitted from FIFO memory 50 to line 32 (channel) and then to ATM network 30. Therefore, it would have been obvious to include the teachings of Gemar et al. into Chiussi in view of Marin's invention to ensure capability allowing scheduler customization and control for outputting various modes of traffic.

Referring to claim 9, Chiussi in view of Marin fails to disclose that the ATM connection has a service category set in GFR, and said switch control unit has a minimum cell rate corresponding to the ATM connection set by said band setting unit. Gemar et al. discloses in column 4, lines 36-45 of the scheduler providing GFR, thus, each session is guaranteed a minimum rate of service while fairly sharing excess bandwidth and providing global maximum rate. Therefore, it would have been obvious to one of ordinary skill in the art to include GFR as taught by Gemar et al. into Chiussi in view of Marin's invention in order to ensure minimum cell rate for entire frames of data, not just cells of data and to further ensure that communication time is not wasted because only portions of the frames are communicated.

Referring to claim 10, Chiussi in view of Marin fails to explicitly teach that the relay apparatus according to claim 8, wherein said ATM connection has a service category set in VBR, and said switch control unit sets an average cell rate corresponding to the ATM connection by

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said band setting unit. Gemar et al discloses in column 4, lines 46 to column 5, lines 14 and in claim 2 of a service category set in VBR, and the scheduler sets average cell rate and processes the slots. Therefore, it would have been obvious to one of ordinary skill in the art to include VBR as taught by Gemar et al. into Chiussi in view of Marin's invention in order to appropriately supply and maximize the effectiveness of the transmission of multiple modes of traffic on the network.

Referring to claim 11, Chiussi discloses in the abstract and in claims 7 and 8 that the band setting unit repetitively sets the communication band at predetermined timings, after the virtual connection is set as the channel (scheduler generates and maintains queue timestamps and queue bits and virtual connection bits based on whether the rates queues and the connections are backlogged, in other words, the relay apparatus sequentially selects each connection satisfying the predetermined criterion for each subsequent timeslot. Chiussi in view of Chiussi fails to disclose: band setting unit sets the communication band, when a permanent virtual connection is set as the channel and band setting unit sets the communication band, when a switch type virtual connection is set as the channel; band setting unit sets the communication band when a call setup is made in accordance with an upper-level layer protocol that is higher than a hierarchy corresponding to the packet, after the virtual connection is set as the channel. Gemar et al. discloses that the ATM system transfers the data cells or units across the ATM system via connections or channel and connections may be classified as SVC or PVC and further discloses in column 4, that the scheduler (band setting unit) schedules a plurality of connections (SVC or PVC) from the at least one tunnel entry to select a connection for eventual transmission. Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings

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of Chiussi in view of to include the teachings of Gemar in order to efficiently schedule band and traffic for multiple connection types.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Or faxed to:

(703)305-3988, (for formal communications intended for entry)

Or:

(703)305-3988 (for informal or draft communications, please label "Proposed" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chirag G Shah whose telephone number is 703-305-5639. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 703-305-4366. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

cgs
January 9, 2004


Ajit Patel
Primary Examiner